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COUNTRY: USSR (UR)

REPORT NO: 1 517 0092 86

TITLE: Multi-stage Missile Observed at the Zhulyany Branch Plant of the Machine Building Plant i/n Artem, Kiev (U)

DATE OF INFO: 780000 (YY MM DD)

REPORT DATE: 860425 (YY MM DD)

ORIGINATOR: Det 21, AFSAC

REQ REFERENCES: K-1DX-00006; A-FSC-42689; T-4G3-42178

SOURCE: (C/NF/WN) WASH-3889. Source was a fitter for metal structures in the Construction and Repair Shop of the Machine Building Plant in the name of Artem in Kiev, UkSSR, USSR, from 1946 through 1972. He worked on construction of the main Artem plant, housing facilities for Artem workers, and the branch plants at Zhulyany and Krasilov. He observed the missile described in this report while at Zhulyany.

SUMMARY: (C/NF) A large, multi-stage missile was observed in an assembly area at the Zhulyany Branch Plant of the Machine Building Plant in the name of Artem in late 1969 or early 1970. The missile had two stages, three sets of major fins and two sets of minor fins. The missile was eight to 11 meters long. Missile parts were fabricated at the Artem Plant in Kiev, and the missile then was assembled at the Zhulyany branch plant. Continued growth of the Zhulyany branch plant indicated the missile continued to be produced into the 1970's. This report contains a description of this missile, including five figures providing sketches of the missile and its components. Limited information also is provided on production data and possible observations of the missile in transit in or out of the Artem Plant.

DETAILS: (U)

DETAILS OF THE OBSERVED MISSILE (U)

(C/NF/WN) (ORIGINATOR'S COMMENT: See Figure 1 for a reduced reproduction of the missile sketch made by Source. Figures 2 and 3 are copies of the original sketches prepared with Source. Detach and tape together for a full view. Collector used the following methodology for preparing this sketch. The collector queried Source on individual sections of the missile, i.e., fuselage, nose, tail, wings, stage breaks, through the use of a collection of segment sketches provided by an analyst in DIA/DT-4A. Source was shown a number of different fuselage shapes from which to choose. Once a general fuselage shape was determined, Source was shown a number of different possible nose cone shapes. The same procedures were followed for each of the component sections of the missile. The finished sketch is attached as Figures 2

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DETAILS: (U)

and 3. The collector did the actual drawings as Source was unable to draw, having damaged his writing hand years ago.)

1. (C/NF) Missile Head or Nose: The head/nose (golovka) of the missile had a diameter of about 60 cm at its base. It was less than one meter long, with the nose shaped as portrayed, and was red in color. Some type of tube or antenna, purpose unknown, extended from the tip of the nose.

2. (C/NF) Fuselage: The fuselage was composed of two stages and had a base diameter of about 70 cm. It maintained this constant diameter for about two-thirds of its length. It then tapered to a diameter of 50 to 60 cm where it was attached to the nose cone. The diameter of the nose cone at its base was slightly wider than the diameter of the fuselage where the two intersected. The tail of the fuselage had a constant diameter; it did not flare suddenly outward or taper inward. (ORIGINATOR'S COMMENT: Source did not recall any bulges at the tail of the missile or anywhere along its length.) The missile's fuselage was silver or grayish in color - probably exposed metal.

3. (C/NF) Connection of Stages: (ORIGINATOR'S COMMENT: Source could not remember the exact location on the fuselage of the connection between the two stages of the missile.) The missile had two stages that were joined by a series of connecting bolts (probably four). The gap between stages was about 10 cm. The bolts had a width of about one centimeter. (ORIGINATOR'S COMMENT: These dimensions are Source's estimates. He did not closely observe this part of the missile. Figures 4 and 5 were reproductions of drawings produced with Source.)

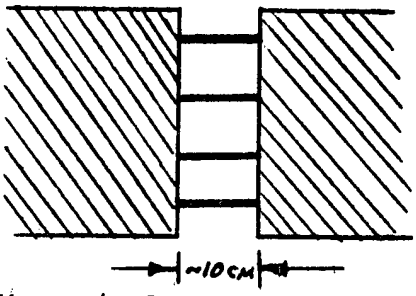

Figure 4: Connection of two stages of missile

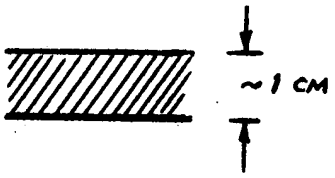

Figure 5: Diameter of bolt

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4. (C/NF) Powerplant: (ORIGINATOR'S COMMENT: Source observed the missile from an angle that prevented him from seeing any part of the powerplant. He could not speculate on its type or performance. As reported in IIR 1 517 0091 86, Source recalled no storage facilities at Artem or Zhulyany for either liquid or solid fuel.)

5. (C/NF) Wings/Fins: The missile had five sets of fins - three sets of major fins and two sets of minor fins. One set of major fins was located at the tail of the missile. Another set was about half way up the length of the missile body. The third set of major fins was just below the missile head. There was a set of minor fins between each of these sets of major fins. The fins were fabricated of some unknown metal, were not known to hinge or fold, and probably were green in color. (ORIGINATOR'S COMMENT: Below is a more detailed description of each of the sets of fins. All angles mentioned are taken from the drawing the collector produced with Source and measured using a reference line drawn from the center of the nose to the center of the base.)

a. (C/NF) Tail Fins: Each tail fin was about 80 cm at its base and extended about 60 cm from the fuselage. The leading edge was swept at an angle of about 40 degrees. The trailing edge measured 90 degrees from the fuselage. There were three tail fins, positioned every 120 degrees.

b. (C/NF) Tail-mounted Small Fins: These fins were about 30 cm at their base and extended about 30 cm from the fuselage. The leading edge was swept at about 45 degrees, and the trailing edge was 90 degrees. This also was a set of three fins mounted at 120-degree intervals.

c. (C/NF) Mid-mounted Large Fins: Each of these fins was tapered, measuring about 70 cm at its base and extending about 50 cm from the fuselage. The leading edge was swept at an angle of about 70 degrees and the trailing edge was swept forward at an angle of 110 degrees. There were only two fins in this set, and they were mounted 180 degrees opposite each other.

d. (C/NF) Front-mounted Small Fins: These fins were swept and not tapered, measuring 20-30 cm at their base and extending about 30 cm from the fuselage. The sweep angle of both the leading and trailing edges of these fins was about 45 degrees. The three fins in this set were mounted with a 120-degree separation.

e. (C/NF) Front-mounted Large Fins: Each of these fins measured about 70 cm at its base and extended about 60 cm from the fuselage. The leading edges were swept at about 50 degrees. The trailing edges were unswept at 90 degrees. There probably were four of these fins, mounted with a 90-degree separation. (ORIGINATOR'S COMMENT: Source thought there were four fins in this set, but also said it might have been only three.)

6. (C/NF) Missile Size: The length of the missile from tail to the tip of the nose was eight to 11 meters. (ORIGINATOR'S COMMENT: During the first debriefing session, Source described the missile as being 11 meters long. A month later during a

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follow-up debrief, Source reported that the missile was perhaps shorter, maybe eight meters long.Source could not account for this difference in length, merely saying that he felt more comfortable with the eight-meter length.)

7. (C/NF) Observation of Missile: (ORIGINATOR'S COMMENT: As described in IIR 1 517 0016 86, Source observed this missile on a one-time basis for perhaps 15 minutes. Follow-up debriefing clarified the date of this observation as late 1969 or early 1970. Source believed the missile he saw was one of the first assembled at the Zhulyany facility. Further details on the Zhulyany branch plant are included in IIR 1 517 0093 86.)

PRODUCTION DATA (U)

8. (C/NF) Assembly of this missile was ongoing at the Zhulyany branch plant as of late 1969 and early 1970. Missile parts were produced at the Artem main plant and brought to Zhulyany for final assembly. As of late 1969 or early 1970, there were no conveyored assembly lines at the Zhulyany branch plant. Parts, such as fins/wings, were sorted in boxes and assembly was performed by hand. Larger-scale production, however, was planned. (ORIGINATOR'S COMMENT: Source retired from full-time employment at Artem in May 1970. He worked on a part-time basis for the next two years. However, he never traveled to any of the branch plants while working part time. Therefore, his latest direct contact with the activities at Zhulyany was in May 1970. Nevertheless, Source believed this large missile continued to be assembled/manufactured at the Zhulyany branch plant beyond 1970. Source's reasoning on the continued manufacture of this missile at Zhulyany was as follows:)

a. (C/NF) The Zhulyany branch plant was constructed rapidly and under condition of high security;

b. (C/NF) The Zhulyany branch plant was a "closed" plant involved in military production;

c. (C/NF) Zhulyany was considered a very important plant by the management and employees. It was even referred to as "The Second Artem";

d. (C/NF) The plant was intentionally built outside Kiev for security reasons. There even was talk of moving all military production out of the Artem main plant in the center of the city;

e. (C/NF) The Zhulyany branch plant was purposely built on a rail spur to provide for convenient and secure shipment of plant products;

f. (C/NF) Initial assembly of the large missile was begun at the Zhulyany branch plant while construction of the largest part of the plant was still underway.

g. (C/NF) A very large ("gigantic, very gigantic" - gromadnyy, ochen gromadnyy)

Details: (U)

building was later constructed at the branch plant;

h. (C/NF) A large number of employees were hired as the branch plant was completed. Employees were sought from the Artem main plant, from the local and surrounding area, and from throughout the Soviet Union.

i. (C/NF) The branch plant employees were never laid off. In order to continue to pay their salaries, the plant had to be producing something. In order to be paying that many employees, it had to be making something for which a high price was paid. This meant military vs. civilian production. (ORIGINATOR'S COMMENT: The last item was Source's speculation, but was based on casual conversations with a friend who worked full time at the Zhulyany branch plant after Source retired. Source never discussed the plant products with this friend because he knew the topic was classified. From these conversations, however, he knew Zhulyany continued to grow in size, payroll, and work load. This friend was always busy.)

9. (C/NF) Other Possible Observations: A large crate loaded on a truck-pulled trailer occasionally was seen at the Artem main plant, perhaps as early as 1965. The crate was about 12 meters long and was thought to have been fabricated at the Artem wood shop. (ORIGINATOR'S COMMENT: Source believed this large crate was for transporting and shipping the large missile described above. Source thought he had seen it as early as 1965, but was not sure.) There was kind of a running joke about this large crate among some of the plant workers who had observed it. It was considered an omen of good fortune, because the workers were confident a product so large must have a high price. High-value products indicated continued high salaries. Finished assembly of one of these products meant norms were being met and bonuses might be forthcoming. Workers were always happy to see one of these large crates.

ORIGINATOR'S COMMENT: (U)

(C/NF/WN) Source was cooperative and appeared sincere in his reporting. Nevertheless, his ability to provide detailed reporting is limited by the time period since his retirement (1972) and departure from the Soviet Union (1978) and his age (70 years old.) He speaks Russian only and is available for further debriefing. For further reporting from this source, cite:

1 517 0016 86: Manufacture of New Multi-stage Missiles by the Four New Branches of the Artem Plant in Kiev

1 517 0091 86: History and Layout of the Machine Building Plant i/n Artem, Kiev, USSR

1 517 0093 86: Branch Plant Network of the Machine Building Plant i/n Artem, Kiev, USSR.

Figure 1: Reduced Sketch of Large, Multi-stage Missile Observed at Zhulyany (C/NF)

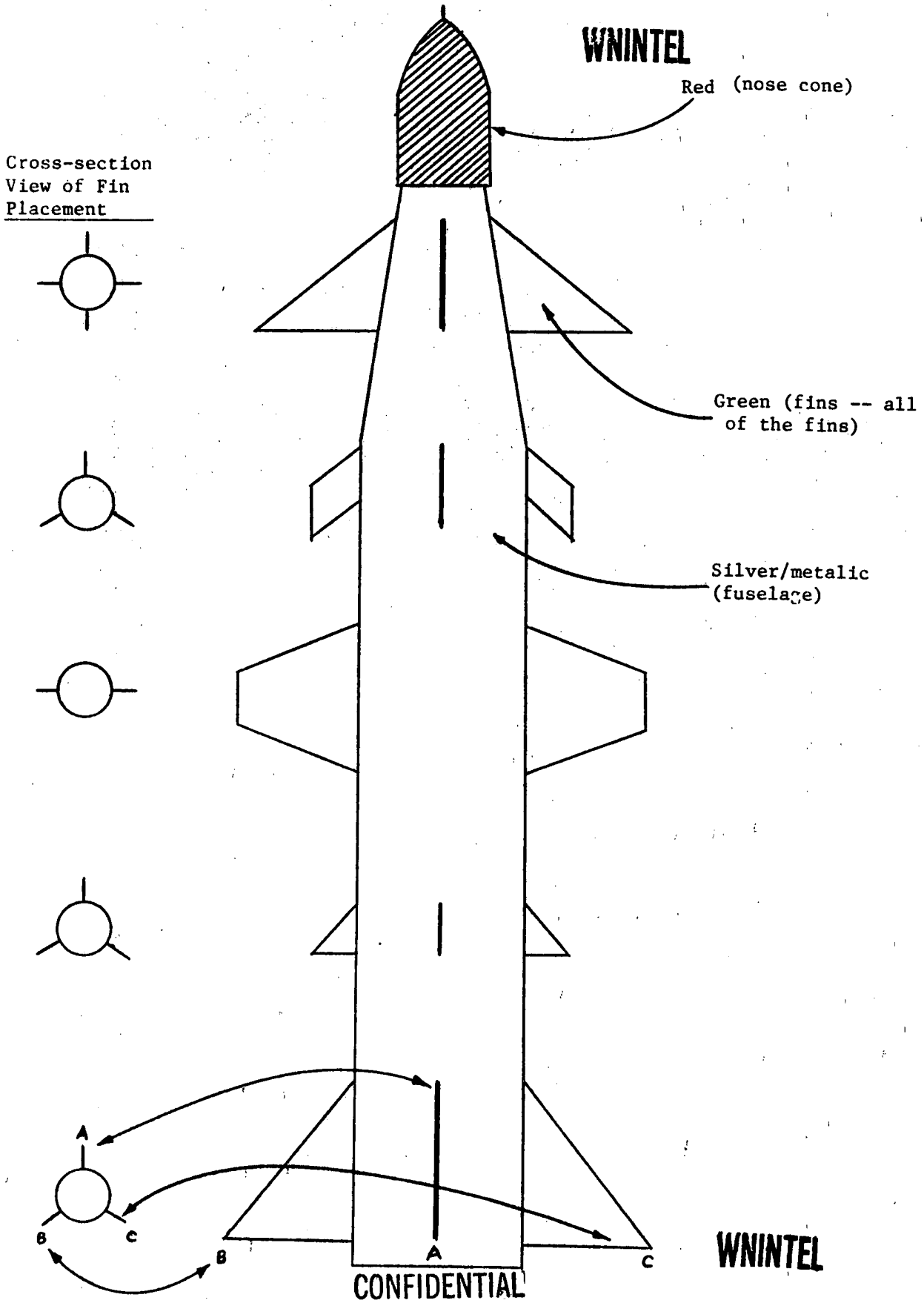

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Figure 2: Top Half of Sketch of Large, Multi-stage Missile Observed at the Zhulyany Branch Plant of the Artem Plant (Attach to Figure 3) (C/NF)

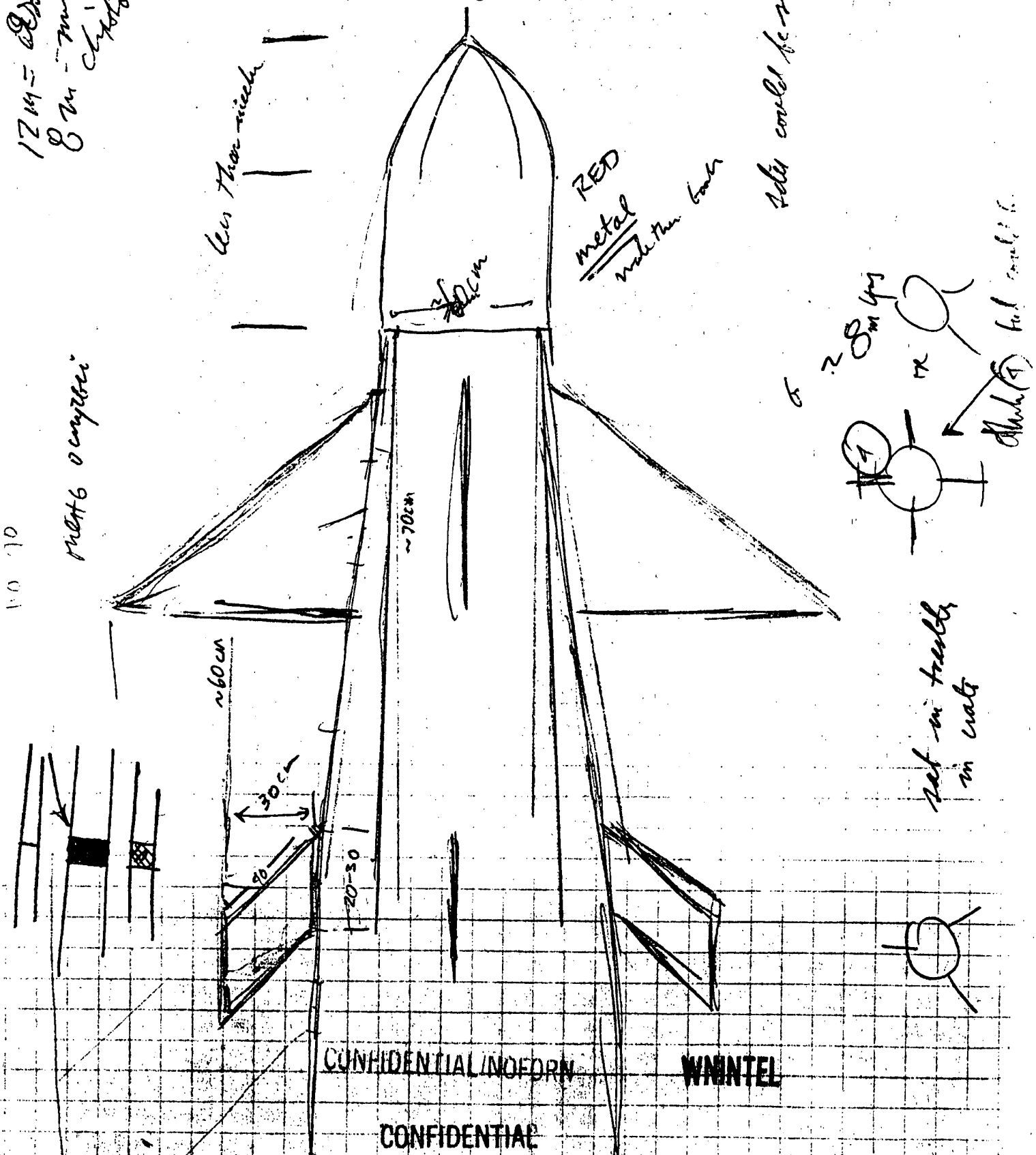

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Figure 3: Bottom Half of Sketch of Large, Multi-stage Missile Observed at the Zhulyany Branch Plant of the Artem Plant. (Attach to Fig. 2) (C/NF)

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SUPPLEMENTAL DATA

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(name, rank/grade, position)

APPROVED BY: (name, rank/grade, position, signature)

KENNETH J. ALLEN, Lt Col, USAF
Commander

REQUEST EVALUATION: ☒ Y ☐ N
Request Evaluation Releasable To: None

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